

AVANTech helps Japan in wake of nuclear disaster

BY MATTHEW GREGORY

Many people are accustomed to wearing a suit to work. For three employees at AVANTech Incorporated, a Columbia-based comprehensive industrial water treatment solutions provider, that suit was a full-body hazmat suit and respirator as they worked to remove radioactive isotopes from wastewater at the Fukushima Daiichi Nuclear Power Station in Japan last summer.

The project was the culmination of eight weeks of around-the-clock work for AVANTech employees. They had one mission driving their long hours: to deliver a water treatment system that could clean the nuclear plant's wastewater before it drained into the ocean.

Fukushima had been devastated by an 8.9-magnitude earthquake and tsunami that caused backup systems to fail. Ocean water was pumped in to provide cooling and prevent total meltdown. Realizing something had to be done to remove radioactive contaminants from the water before they seeped into the ocean, Japanese officials called AVANTech for help.

"Everyone was pitching in around the clock," said Tracy Barker, vice president and principal engineer at AVANTech. "As one of our employees said, 'I worked day shifts, but I never saw my house in the day.' We'd go home to eat and get a couple of hours of sleep, and then we'd come back in and work."

AVANTech has hundreds of customers around the globe in a variety of industries. A walk through the company's 35,000-square-foot facility reveals equipment for multiple projects. AVANTech is providing wastewater treatment equipment for a government facility in Kentucky that is destroying mustard gas that was used in the Vietnam War. Other equipment is going to China to support the new AP1000 reactors provided by Westinghouse. AVANTech is also providing some critical components to the Mixed Oxide (MOX) Fuel Fabrication Facility at the Savannah River Site.

About 50 percent of AVANTech's customers are in the power sector, with about half of those in the nuclear industry. Government clients account for about 20 percent, industrial clients are another 20 percent and municipal clients represent about 10 percent. Yet all other projects had to be put on hold last year so all of AVANTech's resources could go towards preventing an even larger environmental catastrophe in Japan.

"We called all of our other customers and told



them what was going on. We told them we would be a little late with their projects. They all understood," said Jim Braun, president of AVANTech. "Even the vendors who support us understood. We called them up on the Fourth of July and told them we needed parts."



Three AVANTech employees traveled to Japan after last year's earthquake and tsunami to set up a water treatment system that removes radioactive isotopes.

and Brad Tillery, electronics and controls engineer. The three were in Japan for about two months helping with the setup and implementation of the SARRY system. They spent long hours in full protective suits and respirators, getting a crash course in Japanese so they could help plant officials.

According to Braun and Barker, the SARRY system exceeded expectations. While the SARRY system was originally designed to only operate for a year, it's still being used today. In fact, Japanese officials plan on using it for a couple more years.

Braun and Barker expect continued growth for the company, projecting it will double or even triple its

workforce next year. They are also in the early stages of building a new facility.

No matter how much success AVANTech has in the future, both Braun and Barker agree no project will ever be as important as their work at Fukushima.

"You work in an industry all your life and hope to have an impact on that industry," said Braun. "We had an impact."

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Jim Braun and Tracy Barker founded AVANTech in 1999.

Braun and Barker are chemical engineers who met at a previous job in the nuclear industry before founding AVANTech in 1999. When they first started the company, they only did the process, mechanical and electrical engineering work, relying on subcontractors to build the products. In 2007, AVANTech started manufacturing its own projects.

"It's given us a lot of capability to develop solutions that we wouldn't have otherwise developed because we understand how things are manufactured," said Braun. "If we didn't have our manufacturing, design and automation capabilities, we would have never been able to do the Fukushima project."

It was only four weeks from the time AVANTech got a contract for the Fukushima project to the time it delivered a finished product. However, AVANTech got started on the design and began ordering components as soon as talks first began in Japan. The result of the company's long hours was a patent-pending water treatment system called the Simplified Active Water Retrieval and Recovery System, or SARRY. The system was loaded with an absorbent developed by the U.S. government for the removal of harmful contaminants such as Cesium.

Once the SARRY system was finished, Barker traveled to Japan with David Langan, project manager,

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